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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte MICHEL ROCHON, EREL ORTACDAG, and JEE CHIONG HENG

Appeal 2016-004749
Application 14/180,535[1]
Technology Center 2400

Before CARLA M. KRIVAK, HUNG H. BUI, and JEFFREY A. STEPHENS, *Administrative Patent Judges*.

BUI, *Administrative Patent Judge.*

DECISION ON APPEAL

Appellants seek our review under 35 U.S.C. § 134(a) of the Examiner's final rejection of claims 1, 2, 7–9, 14, 15, and 20, which are all of the claims on appeal.[2] We have jurisdiction under 35 U.S.C. § 6(b).

We REVERSE.[3]

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[1] According to Appellants, the real party in interest is Alcatel-Lucent. App. Br. 1.

[2] Additional pending claims 3–6, 10–13, and 16–19 contain allowable subject matter and are not on appeal. Final Act. 5.

[3] Our Decision refers to Appellants' Appeal Brief filed September 1, 2015 ("App. Br."); Reply Brief filed April 8, 2016 ("Reply Br."); Examiner's Answer mailed February 10, 2016 ("Ans."); Final Office Action, mailed July 8, 2015 ("Final Act."); and original Specification, filed February 14, 2014 ("Spec.").

STATEMENT OF THE CASE

Appellants' Invention

Appellants' invention relates to a method and apparatus for performing switchover of anti-replay connections in multiple network processor systems. Spec. ¶ 5; Title; Abstract.

Claims 1, 8, and 14 are independent. Representative claim 1 is reproduced below with disputed limitations in *italics*:

> 1. A method performed by a network device for performing switchover of an anti-replay connection, the method comprising:
>
> *receiving, at the network device, an ownership indication that a first network processor is currently serving the anti-replay connection; and*
>
> *in response to receiving the ownership indication, effecting a presetting in a second network processor of a current sequence number (SN)* for the anti-replay connection to a first value that is greater than or equal to a re-key threshold value, wherein the network device comprises at least one of the first network processor and the second network processor, the re-key threshold value is a value beyond which an SN triggers re-keying of the anti-replay connection, and the second network processor utilizes the current SN upon beginning to serve the anti-replay connection.

App. Br. 11–17 (Claims Appendix).

Examiner's Rejection and Reference

Claims 1, 2, 7–9, 14, 15, and 20 stand rejected under 35 U.S.C. § 102(a)(1) as being anticipated by Khanna et al. (US 2009/0158417 A1; published June 18, 2009) ("Khanna"). Final Act. 3–5.

Issue on Appeal

Based on Appellants' arguments, the dispositive issue on appeal is whether Khanna discloses the following limitations:

> "receiving, at the network device, an ownership indication that a first network processor is currently serving the anti-replay connection; and
>
> in response to receiving the ownership indication, effecting a presetting in a second network processor of a current sequence number (SN) for the anti-replay connection,"

recited in independent claim 1, and similarly recited in independent claims 8 and 14. App. Br. 5–8; Reply Br. 1–3.

ANALYSIS

Independent claims 1, 8, and 14 require: (1) receiving, at a device, an ownership indication that a first network processor is currently serving an anti-replay connection; and (2) in response to receiving such ownership indication, effecting a presetting of a current sequence number (SN) for the anti-replay connection. App. Br. 11, 13, 15.

In support of the anticipation rejection of claim 1, and similarly claims 8 and 14, the Examiner finds Khanna's receiving server 50, including a VPN gateway with QoS anti-replay protection 55, teaches a first network processor. Ans. 2–3 (citing Khanna ¶¶ 26, 44); Final Act. 3–4. The Examiner then finds Khanna's VPN gateway 55 provides anti-replay protection by post-processing each packet against individual per-DSCP (differentiated services code point) anti-replay windows and marking the packet's sequence number as received, which teaches receiving, at a network device, an ownership indication that the first network processor is currently

serving the anti-replay connection, as recited in claim 1. Final Act. 3–4 (citing Khanna ¶ 44 (describing process 670)); Ans. 3 (citing Khanna ¶ 26). The Examiner also finds process 670 modifies global lowest and highest sequence numbers of a global anti-replay window, thereby teaching effecting a presetting of a current sequence number for the anti-replay connection, in response to receiving the ownership indication, as recited in claim 1. Final Act. 3–4 (citing Khanna ¶¶ 21, 45); Ans. 4.

Appellants contend Khanna does not disclose "receiving, at the network device, an ownership indication that a first network processor is currently serving the anti-replay connection," as recited in claim 1. App. Br. 6–8; Reply Br. 1–3. Appellants acknowledge Khanna discloses anti-replay windows of sequence numbers, but argue Khanna "is silent regarding receipt of the claimed **ownership indication**," and "[n]o such receipt occurs in Khanna." App. Br. 6 (citing Khanna ¶ 44). Appellants also argue Khanna cannot preset a current sequence number in response to receipt of an ownership indication because Khanna does not receive an ownership indication as claimed. App. Br. 7.

The Examiner responds that, in the absence of an explicit definition of the term "ownership" from Appellants' Specification, the limitation "receiving . . . an ownership indication that a first network processor is currently serving the anti-replay connection" can be broadly interpreted as an indication that "a first network processor is currently serving the anti-replay connection" (Ans. 2). Based on this interpretation, the Examiner finds Khanna teaches the claimed "ownership indication" because Khanna's VPN gateway *serves* the anti-replay connection, e.g., by marking received

sequence numbers and providing anti-replay protection via the QoS anti-replay processor. Ans. 3–4 (citing Khanna ¶¶ 26, 28–29, 44).

We disagree with the Examiner. Anticipation under 35 U.S.C. § 102 is a question of fact. *Brown v. 3M*, 265 F.3d 1349, 1351 (Fed. Cir. 2001). A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described in a single prior art reference. *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631 (Fed. Cir. 1987).

As discussed *supra*, Appellants' claims 1, 8, and 14 expressly require "*receiving . . . an ownership indication* that a first network processor is currently serving the anti-replay connection," and "*in response to receiving the ownership indication*, effecting a presetting." App. Br. 11, 13, 15 (emphasis added). Appellants' Specification describes a control plane that receives an ownership indication—such as a notification or report—that a network processor has taken ownership of an anti-replay connection. Spec. ¶¶ 31, 34, 35, 42, 43, 47. The Specification then describes effecting a presetting in response to this notification or report. Spec. ¶¶ 31, 34, 43, 52. According to Appellants' Specification:

> [R]outers 130, 150 are configured to enable seamless switchover of connections implementing anti-replay features. In such embodiments, when a network processor, such as NP A1 134 begins servicing a new anti-replay connection, *the NP A1 134 informs the control plane A 132 that NP A1 134 has taken ownership of the anti-replay connection*. . . . The NP A2 136 is also configured to *indicate to the control plane A 132 that the NP A2 136 has taken ownership of the anti-replay connection* in a manner similar to the indication sent by NP A1 134 when establishing the anti-replay connection. *Upon receiving this indication, the control plane A 132 proceeds to effect presetting*

> *of the sequence numbers* held by other network processors for the anti-replay connection. . . .
>
> The IPSec implementation 363 also includes connection registry instructions 365 for *reporting to a control plane when the network processor takes ownership of an anti-replay connection*, such as may be determined by a path change event. . . . [T]he IPSec control implementation 372 includes sequence number preset instructions 373 *for presetting* a sequence numbers of network processors for an anti-replay connection *upon receiving a new ownership indication*. . . .
>
> [T]he network processor *notifies the control plane* in step 420 that the network processor *has taken ownership of the anti-replay connection.*

Spec. ¶¶ 31, 34, 42, 43, 47 (emphases added).

In light of Appellants' Specification, Appellants' claimed "ownership indication" is distinct from the actual ownership. For example, a network processor serving an anti-replay connection may have *ownership* of the connection, but does not generate any type of indicator of such an ownership. In contrast, Appellants' claimed "*ownership indication*" is an indicator of such ownership—such as a notification, report, or other provided information whose receipt at the network device effects sequence number presetting. App. Br. 7 (citing Spec. ¶¶ 43, 47).

Although Khanna discloses the VPN gateway with QoS anti-replay provides anti-replay protection and may therefore have *ownership* of the anti-replay connection by virtue of serving the connection, Khanna does not teach *receipt of any indication* of such ownership, or effecting a presetting *in response to such receipt*. App. Br. 6–8. Rather, Khanna's VPN gateway with QoS anti-replay presets sequence numbers to new values (process 670)

in response to receiving a packet with a sequence number outside previously-set sequence numbers. *See* Khanna ¶¶ 29, 45. That is, Khanna's QoS anti-replay processor implements an anti-replay connection, via processes shown in Fig. 6 (including step 670) and Fig. 7 (describing step 670), but does not disclose how these processes occur in response to receiving an ownership indication. App. Br. 8 (citing Khanna Fig. 7); Reply Br. 3 (citing Khanna ¶ 45). Additionally, Khanna's sequence numbers are not an ownership indication; rather, the sequence numbers are assigned to reject old or duplicate packets, but do not provide an indication of ownership as claimed. App. Br. 7–8 (citing Khanna ¶ 4).

Thus, the cited portions of Khanna do not disclose "receiving . . . an ownership indication that a first network processor is currently serving the anti-replay connection," and "in response to receiving the ownership indication, effecting a presetting . . . of a current sequence number (SN) for the anti-replay connection," as recited in claims 1, 8, and 14.

With respect to the claimed "second network processor," the Examiner finds Khanna's *sending server 30* discloses *a second network processor*. Final Act. 4 (citing Khanna ¶¶ 24, 26, 27). The Examiner then finds *processes 670, 740, and 750* advance the anti-replay window of sequence numbers, thereby teaching *the second network processor* utilizes the current sequence number upon beginning to serve the anti-replay connection, as claimed. Final Act. 5 (citing Khanna ¶ 46). We disagree. Khanna's processes 670, 740, and 750, shown in Figure 7, are performed by the QoS anti-replay processor in VPN gateway 55 of *receiving server 50*, which the Examiner identified as *the first network processor*. *See* Khanna ¶ 26 ("The receiving server **50** includes a VPN gateway with QoS anti-

replay protection **55**"), ¶ 28 ("The anti-replay protection **200** includes a QoS anti-replay processor **205**"), ¶ 29 ("The QoS anti-replay processor **205** may implement the functions described in the processes shown in FIGS. **3** through **7**"); *see also* Ans. 4; Final Act. 3–4.

Thus, in Khanna, the receiving server (the Examiner's identified *first network processor*) effects presetting of the global window's sequence numbers, and then utilizes the preset sequence numbers to continue to serve the anti-replay connection. *See* Khanna ¶¶ 33, 40, 42–46. Khanna's sending server (the Examiner's identified *second network processor*) does not use the global window's preset sequence numbers; rather, the sending server assigns packets' sequence numbers in increasing order per IPSec standards, and sends the packets to the receiving server. *See* Khanna ¶¶ 4, 22, 24.

The Examiner also cites Khanna's paragraph 21 as disclosing the *sending server*. Final Act. 4 (citing Khanna ¶ 21). However, paragraph 21 of Khanna merely discloses re-keying security parameters between servers, and does not disclose that the sending server utilizes the current preset sequence numbers upon beginning to serve an anti-replay connection. *See* Khanna ¶ 21 ("On the *sender VPN Gateway*, when the sequence number is about to wrap, it initiates an IPSec SA re-key, so no special handling of wrap conditions for the multiple anti-replay windows on the receiving VPN gateways"), ¶ 27 ("The SA specifies the authentication and encryption algorithms to be used, the encryption keys to be used during the session, and how long the keys and the security association itself are maintained.").

Thus, the Examiner has not identified sufficient evidence to support the finding that Khanna teaches the "second network processor utilizes the current SN [which was preset in the second network processor] upon

beginning to serve the anti-replay connection," as recited in claims 1, 8, and 14 (*see* App. Br. 11, 13, 15).

For these reasons, we agree with Appellants that Khanna does not anticipate all the limitations of independent claims 1, 8, and 14. Accordingly, we do not sustain the Examiner's rejections of claims 1, 8, and 14, and their dependent claims 2, 7, 9, 15, and 20.

CONCLUSION

On the record before us, we conclude Appellants have demonstrated the Examiner erred in rejecting claims 1, 2, 7–9, 14, 15, and 20 under 35 U.S.C. § 102(a)(1).

DECISION

As such, we REVERSE the Examiner's final rejection of claims 1, 2, 7–9, 14, 15, and 20.

REVERSED